



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: December, 30 2002

In reply refer to: M-02-25 through -28

Admiral Thomas H. Collins
Commandant
U.S. Coast Guard
Washington, D.C. 20593-0001

On the evening of January 12, 2002, the 24-foot U.S. Coast Guard patrol boat CG242513, with two crewmembers on board, was on a routine recreational boating safety and manatee-zone patrol in Biscayne Bay, Florida, when it collided with the small passenger vessel *Bayside Blaster*, carrying 2 crewmembers and 53 passengers. Both Coast Guard crewmembers were ejected from their boat. The patrol boat continued running and struck the *Bayside Blaster* again, struck a moored recreational boat twice, and finally came to rest against pilings at nearby Palm Island. Police officers responding to the scene pinned the patrol boat to the pilings and shut off the engines. Five passengers who reported being injured were taken to Coast Guard Station Miami Beach. After triage, two passengers were transported to a hospital; the others did not request further medical treatment. The two Coast Guard crewmembers were triaged by paramedics on Palm Island, taken to a nearby hospital for further examination, and released the morning of January 13. No deaths resulted from the accident. Total damages were estimated at \$184,722.¹

The National Transportation Safety Board (Safety Board) determined that the probable cause of the collision between the Coast Guard patrol boat and the *Bayside Blaster* was the failure of the coxswain of the patrol boat to operate his vessel at a safe speed in a restricted-speed area frequented by small passenger vessels and in conditions of limited visibility due to darkness and background lighting. Contributing to the cause of the accident was the lack of adequate Coast Guard oversight of nonstandard boat operations. Based on its investigation, the Safety Board identified four safety issues related to Coast Guard operations: (1) operation of the Coast Guard patrol boat, (2) Coast Guard oversight of routine patrols, (3) kill switch operation on Coast Guard nonstandard boats, and (4) Coast Guard safety oversight of small passenger vessels in Miami.

¹ For further information, read National Transportation Safety Board, *Collision Between the U.S. Coast Guard Patrol Boat CG242513 and the U.S. Small Passenger Vessel Bayside Blaster, Biscayne Bay, Florida, January 12, 2002*, Marine Accident Report NTSB/MAR-02/05 (Washington, DC: NTSB, 2002).

At the time of the accident, the Coast Guard lacked guidelines on speed for routine patrols, which in the Safety Board's view allowed coxswains too much latitude in selecting patrol speeds. Most of Biscayne Bay has speed restrictions imposed by Florida to protect manatees, an endangered marine mammal. The Coast Guard boat was conducting a routine patrol, rather than an emergency operation, on the night of the accident, and so was not exempt from the manatee-zone speed restrictions. The coxswain testified to Safety Board investigators that he knew he was approaching a manatee-protection zone as his patrol boat rounded Hibiscus Island (about 400 yards from the accident location). He also testified that he knew there was a blind spot coming around the end of the island. Yet he entered the zone at full speed (32 knots). Even in daylight, the speed at which the coxswain was operating would have been illegal and inappropriate in the area. And even if there were no speed restrictions, the coxswain's speed was imprudent for the prevailing conditions of darkness, background lighting from various sources such as bridges and office buildings, and potential for encountering passenger and recreational vessels in the area of the accident.

Further, Safety Board investigators found that the coxswain had undertaken the patrol without completing a thorough predeparture check of the patrol boat and without ensuring that his port navigation light, a critical piece of equipment, was fully functional. According to the coxswain, when he got under way, the crew of another Coast Guard boat informed him that his port navigation light was not operating. The coxswain tapped the fixture and the light came on. In the Safety Board's opinion, the coxswain should have realized that the light might have been subject to intermittent operation and should have not taken the vessel on a nighttime patrol without ensuring that the light was showing steadily. In addition, the coxswain provided no details of his intended route (float plan) before departing, and the duty officer did not request one. Further, there was no discussion of speed issues or of the condition of the boat that was to be used for the patrol before the boat got under way. Those omissions indicated to the Safety Board that there was a lack of effective oversight of patrol operations at Coast Guard Station Miami Beach.

After the *Bayside Blaster* accident and as a result of an internal Coast Guard investigation of a fatal small boat accident in March 2001, the Coast Guard Commandant instructed the Assistant Commandant for Operations to ensure that small boat coxswains file a float plan before departing on patrol and that they notify their controlling station if they deviate from the plan. The float plan requirements, in the Safety Board's opinion, will provide a measure of oversight over Coast Guard small boat operations. But by themselves, they still fall short of the degree of oversight necessary to ensure operational safety. Oversight could be improved by various means, such as direct observation of coxswains' performance by station officials and solicitation of feedback from waterway users, as well as greater formality in the conduct of routine patrols. For example, if coxswains were required to complete a written checklist before getting under way, they might be more likely to conduct thorough predeparture checks. If detailed predeparture briefings were held, coxswains might be more mindful of operational restraints. And if detailed postpatrol debriefings were held, coxswains might be less likely to take actions they could be held accountable for.

Other changes made by the Coast Guard since the *Bayside Blaster* accident, such as issuing a *Non-standard Boat Operators Handbook* that cautions against operating vessels at excessive speed and requiring in the new *Navigation Standards Manual* that commanding officers impose specific operating restrictions (such as speed limits), should help improve the safety of nonstandard boat operations. Ongoing evaluation and the establishment of verification procedures are, however, essential to ensure compliance with the Coast Guard's policies and procedures regarding the operation of nonstandard boats.

One question in the Safety Board's investigation of the *Bayside Blaster* accident was why the Coast Guard patrol boat's engines continued to run after the coxswain was thrown overboard. The patrol boat was equipped with an engine kill switch mounted on the console. A plastic loop on one end of a coiled lanyard fit over the kill switch, and the other end of the lanyard was connected to a plastic clip on the coxswain's belt. The system was designed so that if the loop-and-lanyard assembly were pulled in any direction from the kill switch, the engines would stop. When the patrol boat lodged against the pilings at Palm Island, however, its engines were still running. If the kill switch lanyard and clip had operated properly, the engines would have shut down as soon as the coxswain was ejected from the patrol boat. If the engines had stopped, the patrol boat would not have struck the *Bayside Blaster* the second time, the other damages would not have occurred, and the Coast Guard crewmembers would not have been placed in jeopardy of being run over by their own vessel.

The Safety Board's Materials Laboratory examined the kill switch lanyard and the coxswain's belt clip, which was broken. The examination indicated that the belt clip was the weak link in the lanyard assembly, suggesting that either the belt clip was the wrong attachment or that the lanyard may have wrapped itself around another item on the console, such as the steering wheel, thereby transferring all the force to the belt instead of to the kill switch. The two Coast Guard crewmembers confirmed that the kill switch lanyard was connected both to the kill switch and to the coxswain, and the police saw the kill switch lanyard connected to the kill switch when the patrol boat came to rest against the pilings on Palm Island. The Safety Board concluded that it could not be determined why the kill switch did not activate when the coxswain was ejected or whether fouling of the kill switch lanyard on the steering wheel was a factor in the engines' failure to stop.

On January 30, 2002, two weeks after the accident, the Coast Guard sent a safety advisory to all Coast Guard units that appears to address most of the problems with kill switch malfunction. For example, the advisory requires that kill switches be attached to a metal D-ring on the coxswain's lifejacket or survival vest and that the switches be inspected daily and tested weekly. However, individual Coast Guard units are being tasked with evaluating the proper location and operation of kill switches, which may be beyond the technical qualifications of some units. Because the placement and arrangement of kill switches may require special knowledge of ergonomics and human engineering, engineers and technicians with those skills should be part of any effort to redesign the kill switch system. The actions by the Coast Guard to improve kill switch use could be enhanced by including kill switch manufacturers and ergonomic/human engineering experts in the redesign process.

The Safety Board's investigation revealed safety deficiencies in the *Bayside Blaster's* equipment and operations that led the Board to conclude that the Coast Guard's marine safety inspection program for small passenger vessels in the Miami area may be less than adequate. For the *Bayside Blaster* to receive a certificate of inspection to carry passengers, the Coast Guard must inspect and certify that the vessel meets the small passenger regulations at 46 CFR 175-185. The *Bayside Blaster* was deficient in at least three respects:

- Safety Board investigators found that lifejackets were not readily available to passengers in the aft part of the vessel, although the *Bayside Blaster* had recently been inspected and approved for operation by the Coast Guard. As the oversight authority for marine safety, Coast Guard inspectors should not permit such arrangements. They should use inspections as an opportunity to review the purpose of the regulations with vessel owners and to improve the safety of passengers by ensuring that lifejackets are readily accessible in an emergency.
- After the accident, the Coast Guard in Miami advised the Safety Board that the navigation lights of the *Bayside Blaster* were not configured in accordance with the Inland Navigation Rules. The measurements taken by the Coast Guard after the accident should have been taken during its 2001 inspection, and corrections should have been made to ensure regulatory compliance.
- The master and operations manager of the *Bayside Blaster* stated that the vessel had repeatedly, though infrequently, operated shorthanded. Their statements indicate that a continuing safety deficiency regarding small passenger vessel operations in Biscayne Bay remained undetected by the Coast Guard. While the owner of the vessel has a primary responsibility for safety oversight, the Coast Guard has an equally important responsibility to maintain oversight of the operations of all small passenger vessels under its inspection authority.

In light of the issues discussed above, the National Transportation Safety Board makes the following safety recommendations to the U.S. Coast Guard:

Establish oversight procedures for use by the commanding officers or officers-in-charge of Coast Guard stations to improve the safety of Coast Guard routine small boat operations, including the institution of in-depth predeparture briefings, thorough predeparture checks of boats, monitoring of coxswain performance, and thorough postpatrol debriefings. (M-02-25)

Evaluate on an annual basis your program for reducing nonstandard boat accidents and for ensuring compliance with Coast Guard policies and procedures related to those vessels; publish the results annually for use by Coast Guard stations. (M-02-26)

Evaluate the adequacy of the design of present or future kill switch systems on Coast Guard small boats, giving full consideration to ergonomic/human engineering factors. (M-02-27)

Evaluate the adequacy of the marine safety inspection program in the Miami area to ensure that small passenger vessels are in compliance with applicable regulations, including the requirements for lifejacket stowage, navigation lights, and manning. (M-02-28)

As a result of this investigation, the Safety Board also issued safety recommendations to Boatrides International, Inc. (owner of the *Bayside Blaster*), and the Passenger Vessel Association. The Safety Board would appreciate a response from you within 90 days addressing actions you have taken or intend to take to implement our recommendations. In your response to the recommendations in this letter, please refer to M-02-25 through -28. If you need additional information, you may call (202) 314-6177.

Acting Chairman CARMODY and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.

By: Carol J. Carmody
Acting Chairman